

Please use this form to document your comments to Appendix B, Entrainment. Please number your comments in the first column and indicate the page, section, and line number (if provided) that reference the comment's location in the review document.

To be of the greatest value to the document development process, please make your comments as specific as possible (e.g., rather than stating that more current information is available regarding a topic, provide the additional information [or indicate where it may be acquired]; rather than indicating that you disagree with a statement, indicate why you disagree with the statement and recommend alternative text for the statement). Do not enter information in the Resolution column.

<b>Document: Appendix B, Entrainment</b>						<b>Date Comments Requested by: 9/9/2011</b>
<b>Comments Submitted By: Federal Agencies</b>						<b>Date Comments Submitted: 9/9/2011</b>
NO.	SECTION #	PAGE #	LINE #	COMMENT	Agency	RESOLUTION
1	Appendix B.0	Summary Page B-1	Footnote 1	"Additional modeling is underway of an additional <u>water</u> operation called Scenario 6,...". Suggest to insert the word <u>water</u> .	USFWS	
2	Appendix B.0	Summary	19	Suggest to change 'along-bank' to on-bank.	USFWS	
3	Appendix B.0	Overall	Overall	There was an oversight in numbering the lines of pages for review.	USFWS	
4	Appendix B.0	B-2 through	3-15 and 1-8	Recommend citing Table B-5. This table is a visual representation of	USFWS	
5	Appendix B.0	B-ii	52	Larva, should be more specific to say that it is Particle-tracking	USFWS	
6	Appendix B.1	Overall	Overall	SWP/CVP prefixes are used in the naming system for most of the	USFWS	
7	Appendix B.0	Overall	Overall	for each species that would affect that would affect entrainment	USFWS	
8		B-5	19-20	louvers, screens and Capture-Handling-Trucking-Release, is not	USFWS	
9		B-7	21	Please provide the citations for those data that suggest a nonlinear	USFWS	
10		B-10	17-19	Appendix B addresses that there is little known about loss of fish due to entrainment and submits that monitoring will be used to determine this at the north Delta intakes. Does the effects analysis describe this monitoring program? Should it be part of this appendix?	USFWS	
11		B-12		and inappropriate for a technical appendix.	USFWS	
12		B-12		decreased over time not only as a result of water operations	USFWS	
13		B-16	1st para	This is the first I've heard of an additional alternative intake to the Barker Slough pumping plant. However, it seems a misnomer to call it "alternative," because as I read it, this is another dual conveyance, where the new intake will be "operated to help meet water demands," which I do not believe was the intent of the CALFED ROD, which was to move an intake out of Barker Slough to alleviate negative effects of delta smelt.	USFWS	
14		B-27	6-7	The proposed project is expected to increase the total amount of water exported. How will the resultant impact to delta smelt critical habitat be evaluated?	USFWS	
15		B-27		The appendix clearly states (p. B-27, line 6-7) that the proposed project is expected to increase the total amount of water exported over existing conditions. What is the plan for characterizing this impact?	USFWS	
16		B-28		The title to table 3 is unclear; average monthly <i>what</i> ?	USFWS	
17	B.3.4.2	B-37		SALVAGE DENSITY METHOD- Normalized to population size B.3.4.2 (p.	USFWS	
18	B3.4.5.1	B-40	10-21	Are 1996-2010 densities a "good" use to characterize splittail salvage?	USFWS	
19		B-48	6	From what study do the secchi depths come?	USFWS	
20		B-50	1st para	"Recent data indicates that between 20% and 80% of delta smelt	USFWS	

21		B-168	10-14	It would be helpful for the reviewer to see the “starting distributions”	USFWS	
22		B-168	35-37	gives between 5 and 9. Is there any change as a result of fewer or	USFWS	
23		B-189	Table B-133	How does including these maximum flows affect the results?	USFWS	
24		B-305	15-19	USFWS Delta Juvenile Fish Monitoring Program samples upstream of	USFWS	
25		B-305		entrainment and impingement of delta smelt (as described above).	USFWS	
26		B-317	36-37	I would not have come to the same conclusion. These are the same	USFWS	
27		B-318	6-7	The description of decreased entrainment loss under the proposed	USFWS	
28		B-327	15	This sentence says “delta smelt” but it is supposed to say “longfin	USFWS	
29		B-348	10-11	The document does say that this is an oversimplification, but the	USFWS	
30		B-349	Table B-253	This table seems overly simple.	USFWS	
31		B-8	Figure B-1	more appropriate to read ‘ <i>for intakes on-bank, littoral species on the</i>	USFWS	
32	Appendix B.0.	Summary		screening success with the PP’s screening design in numerous	USFWS	
33	Appendix B.0.	Summary		We remain confused about the draft position on entrainment and impingement of delta smelt. While fish entrainment (based on PTM runs) may decrease under the dual conveyance, in that fish-laden water being <i>pulled</i> to an intake is lessened, those delta smelt that were upstream of the north Delta intake can, and in many cases will, be impinged. Yes, unlike the south Delta pumps, the direction of flow along the north Delta intake will be going in the “natural” downstream direction. However, delta smelt are still in a body of water that is influenced by the adjacent intake. We are concerned that uncertainties associated with impingement and entrainment at the North Delta facilities is not fully examined or discussed.	USFWS	
34		B-8	Figure B-1	relationship with ‘Entrainment and Impingement Loss of Covered Fish	USFWS	
35		B-524	Table B-2	find a way to code the table so that it’s clear which + and – apply to	USFWS	
36	Appendix B.0	B-1	9-11	impingement and predation. Impingement and predation losses can	USFWS	
37	Appendix B.0	B-1	20-24	Nonethess they still are very uncertain tools to quantify the	USFWS	
38	Appendix B.0	B-2	4-5	may be used as an index of total total entrainment, but it should be	USFWS	
39	Appendix B.0	B-4	Table B-2	Are these short term entrainment effects? Needs also mid- and long-term effects based on a range of sea level rise projections. Besides, entrainment needs additional tables for predation and impingement. 100% screened does not necessarily mean fish friendly screen. Footnote of table: What is the baseline period for the effects in each water year type?	USFWS	
40	Appendix B.0	B-8	25-29	estimate entrainment losses using empirically derived pre-scren	USFWS	
41	Appendix B.0	B-8	33-38	Without taking into account the effects of proposed water diversions	USFWS	
42	Appendix B.0	B-9	7-11	Reference to the preliminary proposal is not compared to a current	USFWS	
43	Appendix B.0	B-10	11-12	prior to cosntruction even for the largest of the covered fish species.	USFWS	
44	Appendix B.0	B-10	18-19	anticipated sea level rise over the proposed duration of the project.	USFWS	
45	Appendix B.0	B-11	14-15	Entrainment is currently far from being accurately monitored due to	USFWS	
46	Appendix B.0	B-11	20-21	identifying those in which entrainment and impingement data are	USFWS	
47	Appendix B	B-5	20-21	great majority of adult delta smelt and about half of juvenile delta	USFWS	
48	Appendix B	B-12	1-3	delta smelt population indices in the early 1980’s and 2000’s.	USFWS	
49	Appendix B	B-21	Sec B.2.2	South delta diversions would be even more affected by sea level rise	USFWS	

50	Appendix B			Delta intakes could be revised to more accurately reflect the	USFWS	
51	B.3.4.1	B-35	9	The salvage density method seems to be applied to sturgeon, but no	USBR	
52	B.3.4.2	B-37	16	How was normalization done for white sturgeon? CDFG has annual	USBR	
53	B.2.2	B-21		It seems like the two baselines are not behaving the same in the April	USBR	
54	B4.1.1.1	B-71	25	This section should present entrainment results from dry and critical	USBR	
55	B.4.1.11	B-303	10	This section on Escape Ability starts with a discussion on velocities at	USBR	
56	B.4.1.11	B-304	2	Other fish likely inhabit the Old River canal there like various basses	USBR	
57	B.4.1.11	B-304	14	Targeted studies would be good. In fact many locations are being	USBR	
58	B.5	B-363	32-34	I believe the narrative here about increased entrainment refers to	USBR	
59	Contents			Note that section numbering is off for several sections, including the	NMFS	
60	B.0	S B-6		What version of DPM was used (it is currently undergoing revision)?	NMFS	
61	B.2	B-5	Footnote	For completeness, include definition of impingement as an indication	NMFS	
62	B.2	B-5	25	It seems unlikely that any intake structure can wholly eliminate	NMFS	
63	B.1.1	B-10		For clarity, change y-axis labels to "Number of Fish Salvaged".	NMFS	
64	B.1.1	B-12	23	Discussion of a nonphysical barrier at CCF is new to this version of the	NMFS	
65	B.1.1	B-12	13	CM1 - spell out Conservation Measure.	NMFS	
66	B.3	B-17	18	EBC w/o X2 is not modeled yet for ELT and LLT. Will it be, and will	NMFS	
67	B.2.3	B-24	4	Consider adding parenthetical "oceanward" after "northerly".	NMFS	
68	B.3	B-28		Remove negative signs, they are inconsistent with the	NMFS	
69	B.3.1	B-32	Table B-4	Adult green and white sturgeon should not be subject to	NMFS	
70	B.3.2	B-33	Table B-5	Correct White Sturgeon Juvenile to indicate use of salvage-density	NMFS	
71	B.3.4.1	B-36	29	Indicate the bases of the prescreen predation losses?	NMFS	
72	B.3.4.3	B-37	26-29	Explanation of method beginning with "All salvage or loss densities..."	NMFS	
73	B.3.4.5.1	B-41	4	Indicate why average Feb-June delta inflow was used. Were the	NMFS	
74	B.3.4.1.1	B-47	Figure B-14	Make scales on both axes the same for the two graphs. These could	NMFS	
75	B.3.5.1.2	B-48	3-37	This section is confusing. It needs to be broken up into accessible	NMFS	
76	B.3.5.1.2	B-48	11-14	It is unclear if Miller developed these equations or if they were	NMFS	
77	B.3.5.1.2	B-48	16	Reference is made to Equation (1), but equations are not numbered.	NMFS	
78	B.3.5.1.2	B-48	25	The increasing trend is relative to time; state that in the text and refer	NMFS	
79	B.3.5.1.2	B-48	33	Should reference of Figure B-15 be a reference to Figure B-16	NMFS	
80	B.3.5.1.2	B-49	Figure B-16	Label the y axis.	NMFS	
81	B3.5.2	B-51	8	If "The equation used" refers to the best-fit two-flow-term equation,	NMFS	
82	B.3.6.1	B-55	31	It is not clear from the description of the PTM effort if ag intakes are	NMFS	
83	B.3.6.1	B-55	37	What are the "numerous scenarios" representing (WYT? PP_ELT and	NMFS	
84	B.3.6.1	B-56	9	There needs to be a better description of the PTM (perhaps in a	NMFS	
85	B.3.6.1	B-60	19	"above" refers to a number, or to data that was previously	NMFS	
86	B.3.6.1.	B-60	12	13 PTM scenarios were selected and used in this analysis; note that	NMFS	
87	B.3.6.1	B-61	Figure B-21	Presentation of data is deceiving; make all flow y-axes and tickmarks	NMFS	
88	B.3.6.1	B-65	7	This suggests that the "uniform distribution" method results were not	NMFS	
89	B.4.1.2.1	B-80	27	Indicate where 500,000 comes from and whether it is	NMFS	
90	B.4.1.2.2	B-99	Table B-45	Showing an average value on this table (and the following Table B-46)	NMFS	
91	B.4.1.3.1	B-101	38	Indicate where 750,000 comes from and whether it is	NMFS	
92	B.4.1.3	B-103	3	"Loss", or "entrainment", or "salvage"? Be consistent with	NMFS	
93	B.4.1.3.1	B-124	6	With regards to the spring and fall run length-at-date uncertainty, is it	NMFS	
94	B.4.1.5.1	B-168	10	It was previously stated that the PTM uniform distribution	NMFS	

95	B.4.1.5.1	B-168	13-16	"Entrainment generally was greater for 60-day particle tracking, as	NMFS	
96	B.4.1.5	B-168	10	Uniform distribution, and other subsequently discussed distributions,	NMFS	
97	B.4.1.5.1	B-189 and B	Table B-133	Indicate how data was processed to provide the flow statistics in this	NMFS	
98	B.4.1.5.2	B-197	12-16	The text does not seem to correspond to the plot that it references	NMFS	
99	B.4.1.5.2	B-198	Figure B-44	First, it seems that EBC1 is not plotted. Next, this plot would better	NMFS	
100	B.4.1.5.2	B-201	4	Regarding references to Figures B-47 and B-45 and Tables B-148 and B-	NMFS	
101	B.4.1.5.3	B-211	12-14	Indicate why adult entrainment losses were limited to wet and above	NMFS	
102	B.4.1.5.3	B-213	6-7	Indicate why adult entrainment losses were limited to wet and above	NMFS	
103	B.0	Summary B-	3	This definition should be clarified. Do fish need to physically removed	NMFS	
104	B.0	Summary B-	1	There are some preliminary analyses of the recent study at G. Slough	NMFS	
105	B.0.1	Summary B-		Fall-run fry can occur in large numbers in the Delta in some years.	NMFS	
106	B.0.1	Summary B-		How will we know if fry (or other life stages) are included in the	NMFS	
107	B.0.1	Summary B-		Are there no records for lamprey entrainment? ("NA" in every cell for	NMFS	
108	B.0.1	Summary B-	8-9	Exports increase in some water years in April and May relative to the	NMFS	
109	B.0.1	Summary B-	38-39	The very low estimates from the Delta Passage Model relative to the	NMFS	
110	B.0.1	Summary B-	3	When giving percentages, please be very explicit in explaining exactly	NMFS	
111	B.0.1	Summary B-	3	Is it that there is no evidence for entrainment, or that these	NMFS	
112	B.0.1	Summary B-	28-30	Yes, we will need to keep in mind that current species distributions	NMFS	
113	B.2.1	B-6	28-29	Why assume that fish are trying to avoid the intake? Many of these	NMFS	
114	B.2.1	B-7	18-24	Since you cite two papers that argue that the relationship between	NMFS	
115	B.2.1	B-8		In Fig B-1, add a link from river/tidal flow to size of the HZI; the	NMFS	
116	B.1.1	B-10	?	Entrainment should be an even stronger focus given the reduced	NMFS	
117	B.1.1	B-10		Please add graphs for sturgeon and lamprey	NMFS	
118	B.1.1	B-12		The statements on impacts to water supply and economic costs are	NMFS	
119	B.1.2	B-12		Are the non-physical barriers at the entrance to CCF and DMC new	NMFS	
120	B.2.3	B-27	8-9	Why would exports decrease in the LLT? Demand is likely to increase	NMFS	
121	B.3.4.1	B-36	34	Louver losses of 50% for each of these species seems unlikely given	NMFS	
122	B.3.4.1	B-36	32	0% loss during transport? Really? How did they even measure that?	NMFS	
123	B.3.4.4	B-39	19-20	This is a big assumption. How about assuming its proportional to	NMFS	
124	B.3.5	B-45	8-9	There are significant relationships between OMR flows and	NMFS	
125	B.3.5.3	B-52		This analysis (Fig B-18) uses average OMR flows over four months,	NMFS	
126	B.3.7	B-67	20-22	OMR flows (and therefore San Joaquin flows) should also influence	NMFS	
127	B.3.7	B-67	31-38	Please provide more detail on this model of salvage for the San	NMFS	
128	B.3.8	B-68	25-30	Please provide a more detailed discussion here. Especially on the	NMFS	
129	B.4.1.1	B-74		In Fig B-13, are the zero values for Feb and March at the CVP in	NMFS	
130	B.4.1.1	B-74		The estimated increased entrainment of some salmonid species in	NMFS	
131	B.4.1.2.1	B-80	10	Here you mention normalizing to the adult population size. Earlier in	NMFS	
132	B.4.1.4.1	B-124	9-10	The large difference in the distributions in Fig B-26 suggest either a	NMFS	
133	B.4.1.10.1	B-297	6-7	The large difference in salvage between the CVP and SWP again	NMFS	
134	B.4.1.10.1	B-298		Table B-240 is not necessary. A figure showing actual historical	NMFS	
135	All	All		Table B-243. Please use the life stages: egg, alevin, fry, parr, smolt,	NMFS	
136	B.4.2.7	B-316	3-9	The analysis needs some description of the size of white sturgeon	NMFS	
137	B.5	B-357	19-20	Raw salvage at the water diversions is readily monitored, but the	NMFS	
138		7	6-12	Population impacts for South Delta entrainment could be greater	NMFS	
139				the Central Delta. Sacramento River hydrology plays a key role for	NMFS	